US008760389B2

US 8,760,389 B2

(12) **United States Patent**
Yaun

(10) **Patent No.:** **US 8,760,389 B2**
(45) **Date of Patent:** **Jun. 24, 2014**

(54) **HANDWRITING RECOGNITION IN ELECTRONIC DEVICES**

(75) Inventor: **Shijun Yaun**, Beijing (CN)

(73) Assignee: **Nokia Corporation**, Espoo (FI)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1610 days.

(21) Appl. No.: **11/993,770**

(22) PCT Filed: **Jun. 24, 2005**

(86) PCT No.: **PCT/IB2005/002312**
§ 371 (c)(1),
(2), (4) Date: **Jun. 14, 2010**

(87) PCT Pub. No.: **WO2006/136877**
PCT Pub. Date: **Dec. 28, 2006**

(65) **Prior Publication Data**
US 2010/0245230 A1   Sep. 30, 2010

(51) **Int. Cl.**
G06F 3/00   (2006.01)
G09G 5/00   (2006.01)
(52) **U.S. Cl.**
USPC **345/156**; 345/173; 345/179; 178/18.01; 382/181
(58) **Field of Classification Search**
USPC 345/156–184; 178/18.01–20.01; 382/181, 185–189
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,022,081 A		6/1991	Hirose et al.
5,049,862 A	*	9/1991	Dao et al. 345/179
5,699,455 A	*	12/1997	Arai et al. 382/187
5,781,663 A	*	7/1998	Sakaguchi et al. 382/189
5,889,888 A		3/1999	Marianetti, II et al.
6,185,333 B1	*	2/2001	Arai et al. 382/187
6,396,950 B1	*	5/2002	Arai et al. 382/181
6,697,524 B1	*	2/2004	Arai et al. 382/187
6,788,815 B2	*	9/2004	Lui et al. 382/187
7,050,046 B1	*	5/2006	Park et al. 345/173
7,580,029 B2	*	8/2009	Liu et al. 345/169
8,094,938 B2	*	1/2012	Wang et al. 382/185
2005/0219226 A1	*	10/2005	Liu et al. 345/173
2008/0166049 A1	*	7/2008	Wang et al. 382/189

FOREIGN PATENT DOCUMENTS

JP	61175785	7/1986
JP	03176786 A	7/1991
JP	05012483	1/1993
JP	11282966 A	10/1999

OTHER PUBLICATIONS

Office Action in EP05766243.9 dated Apr. 11, 2012.

(Continued)

Primary Examiner — Dmitriy Bolotin
(74) *Attorney, Agent, or Firm* — Banner & Witcoff, Ltd.

(57)   **ABSTRACT**

The present invention provides a method of inputting characters into a handheld device, comprising steps of: reading handwriting information; recognizing said handwriting information in one active recognition mode and at least one inactive recognition mode; displaying at least one character candidate obtained in said active recognition mode and at least one character candidate obtained in said at least one inactive recognition mode; and inputting into said handheld device a desired character candidate selected by a user among said character candidates being displayed. The present invention also provides a corresponding apparatus for inputting characters into a handheld device, and a related handheld device. A user no longer needs to designate handwriting recognition modes, and recognition accuracy is greatly improved.

40 Claims, 3 Drawing Sheets